CHAPTER 2
General Considerations

2-1 The Army Arts and Crafts Program

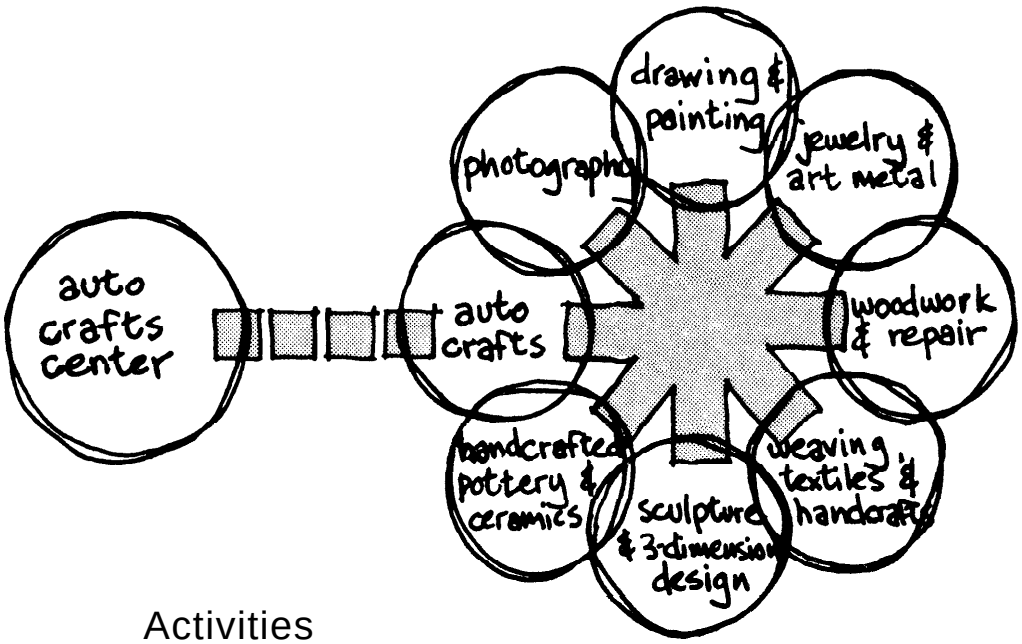
a. The Arts and Crafts Program includes fine arts, handcrafts and skills required for constructive use of tools, innovative and manipulative use of materials, and application of technical knowledge, discipline and judgement. Activities are planned for both beginner and professional to stimulate new interests and progressively to increase their competence. Informal instruction is provided for individuals, and regularly scheduled classes are held for groups.

b. Members of the program are encouraged to share their accomplishments with the civilian community through open-house type activities and off-post exhibitions, workshops, fairs and similar activities.

c. A minimum of seven basic arts and crafts are offered to the person pursuing "creative development" of his/her leisure time:

HANDCRAFTED POTTERY AND CERAMICS
DRAWING AND PAINTING
JEWELRY AND ART METAL
WEAVING, TEXTILES AND GENERAL HANDCRAFTS
SCULPTURE AND THREE-DIMENSIONAL DESIGN
PHOTOGRAPHY
WOODWORK AND REPAIR

d. A specialized facility for an Auto Crafts Center (auto self-help garage) is also authorized for the repair and maintenance of personal vehicles. A separate design guide (DG 1110-3-126) has been prepared for this type of facility.



Activities

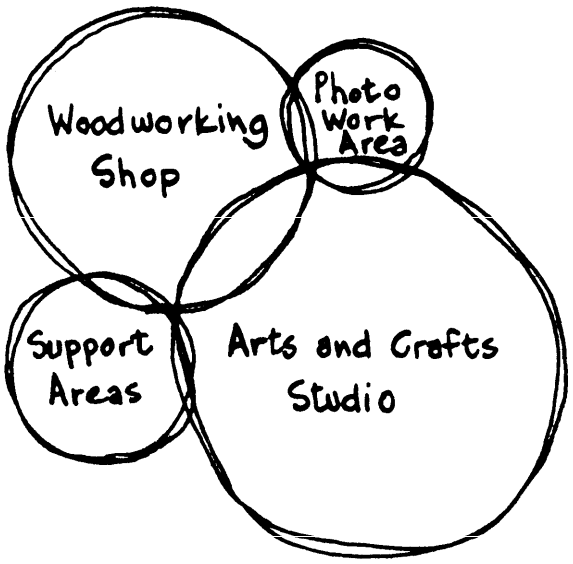
2-2 Arts and Crafts Centers

a. To house the arts and crafts program one multiple-type Arts and Crafts Center is the authorized minimum requirement for each installation.

b. A typical Arts and Crafts Center may be dividied into four basic functional areas; a shop for woodworking; an area for photography; a multi-purpose studio for arts and crafts; and utility and service areas. Variations may be made in the allocation of space for specific arts and crafts activities, as long as the total authorized space allowances are not exceeded. Criteria for the allocation of space within the center is given in Chapter 3.

c. The Arts and Crafts Center also serves as the Arts and Crafts Program Administrative Center for an installation. Branch Arts and Crafts Centers and/or specialized facilities may be authorized for activities such as boat building, electronics, and woodworking.

d. Since participants will include dependents and retirees, Arts and Crafts Centers must be accessible to and usable by the physically handicapped. Refer to ER 1110-1-102, *Design for the Physically Handicapped,* for guidance.



Functional Areas

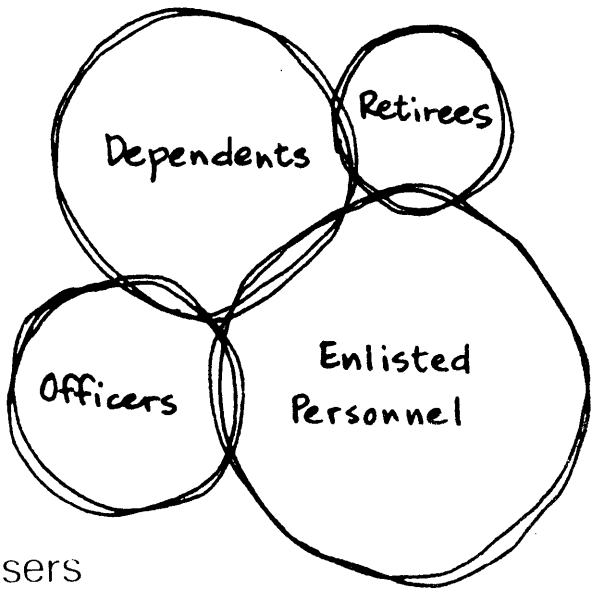
2-3 Participants

a. The Arts and Crafts Center attracts a diversified cross section of the installation community. There are often correlations between particular activities and various categories of users. For example, military career and retired personnel usually make heavy use of woodworking shops, younger enlisted men are the primary participants in photography, and dependents are often most interested in the broad range of general handicrafts.

b. Transient and permanent post personnel also have different program needs. Transient personnel have less time to devote to long-term projects and are more likely to use the center for smaller projects and brief periods of time at irregular intervals.

c. No arts and crafts program can, or should, remain unchanged for very long. Directors should always be on the alert to detect new trends. The average Army's recruit today may have different interests than his predecessor, and his involvement in craft pastimes will not necessarily be the same. As a result, the popularity of the various arts and crafts activities also change. For example, there was little demand for glassblowing in the past, but now it is rapidly increasing.

d. Many factors influence the number of participants in an arts and crafts program, but the most important is probably the effectiveness and enthusiasm of the director and staff. The location and type of installation, competing civilian facilities, climate and cultural attitudes all effect participation in arts and crafts.

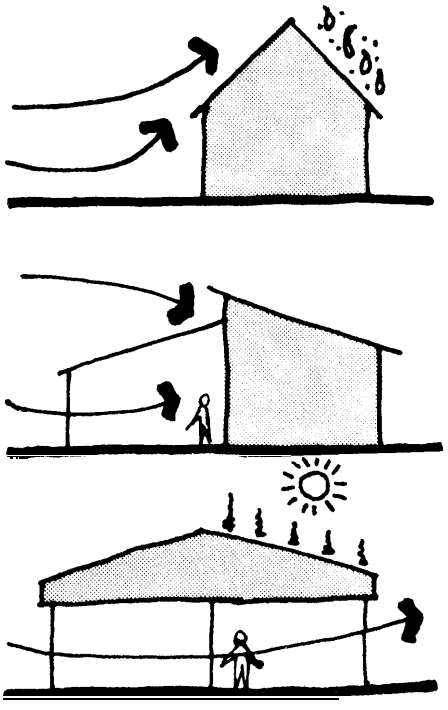


Users

2-4 Climatic Influences

a. Building designs for Arts and Crafts Centers should be responsive to regional variations in climate. This affects not only building orientation and fenestration but also use of outside space for activities which may be performed in either open or covered work areas. In reference to authorized space allowances, covered areas are calculated at one-half of the gross square foot area of indoor areas. In mild climate zones, advantage can be made of this factor to increase the usable amount of work area within the authorized programmed space allowance.

b. With the growing concern for energy resources it is important to begin considering conservation factors at the early planning stages. For example, in more severe climates, buildings should be compact to minimize perimeter walls. They should be oriented to reduce exposure on prevailing weather sides and to reduce heat loss. In temperate locations, full advantage should be made of overhangs, setbacks and orientation to shade windows and utilize prevailing breezes, thus reducing the need for mechanical cooling. Covered exterior work areas may be provided in addition to indoor space.



(1) Severe climate dictates compact building forms.

(2) Temperate climate permits the use of natural ventilation and light.

(3) Warm climate permits maximum use of covered exterior work areas in addition to indoor space.

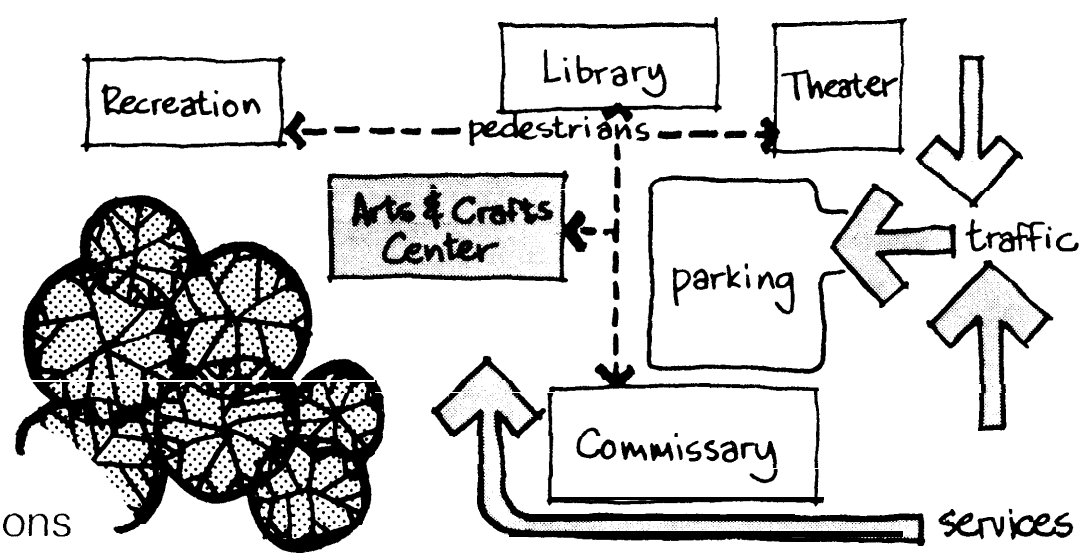
Building Orientation Factors

2-5 Siting

a. Installation master plans are guides for future land development and indicate specific locations of proposed facilities. They evolve from an analysis of requirements for housing, support activities and military operations. Ecological considerations, utility and transportation modes and natural characteristics of the terrain are some of the factors which contribute to the formulation of the plan.

b. Arts and Crafts Centers generate a large amount of activity. They are places of excitement where creative things happen. Although traffic and noise problems which result from the operations of the center must be considered in each design solution, the facilities themselves generally do not disturb their neighborhoods and therefore need not be isolated. In fact, the Arts and Crafts Center might well be part of a larger social/recreational complex which offers numerous leisure activities in much the same manner that a shopping mall gives it patrons purchasing choices. Libraries, theaters, recreation centers and snack bars are all compatible facilities that might be mutually supportive of a large complex. Refer to TM 5-803-6, *Site Planning of Community Centers,* for guidance.

c. At most installations there is one Arts and Crafts Center. However, when the installation is large, several smaller centers should be considered because the areas served by a single center might be too large to be convenient to the majority of the prospective users. If a center is sited in a complex with other facilities for leisure activities, or into a central core area of shopping, recreation and service facilities, then the entire complex can be more easily served by both public transportation and service vehicles.



Site Considerations

2-6 Landscape Planting

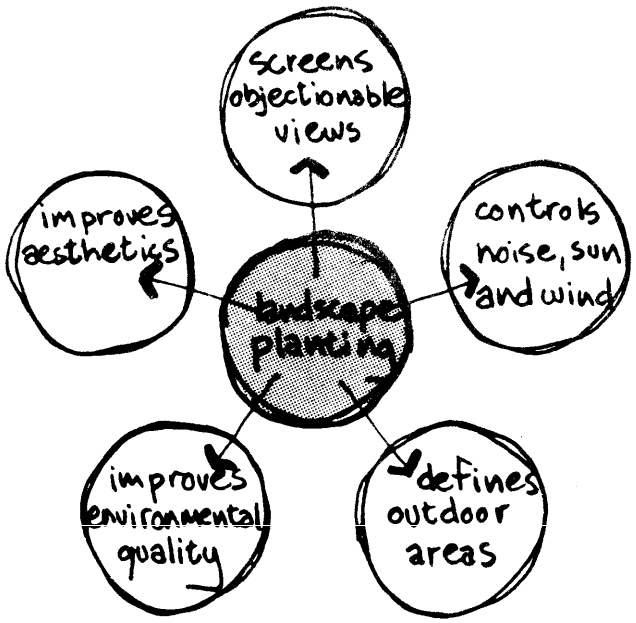
a. Landscaping of Arts and Crafts Centers can not only improve their aesthetlc character but serve other purposes as well. Landscaping can help create or define outdoor work areas, direct the flow of traffic, muffle noise and dirt, screen objectionable views, control sun, wind and rain, reduce glare and conserve energy. Vegetation adds to the environmental qualities of an area by controlling erosion, sustaining wildlife, absorbing carbon monoxide and dioxide, and discharging oxygen.

b. Landscape planting at military installations should be designed to minimize maintenance and vandalism as much as possible. However, planting should not be so minimal or so protected that it defeats Its functional and aesthetic purposes.

c. Paving materials, planters, benches, and other outdoor furnishings should be selected for durability as well as texture, scale, shape and color.

d. Desirable plants are those most resilient or defensive in nature, with tough leaves or bark or fine thorns. Selections should be made from evergreens and those deciduous trees that blossom in spring, bear foliage in the summer and change color in the fall to produce continuing interest.

e. Terraces, walks, walls, outdoor furnishings, ground cover, and planting contribute to the character of outdoor space at the Arts and Crafts Center itself and the total landscaping program of the installation.



Landscape Functions

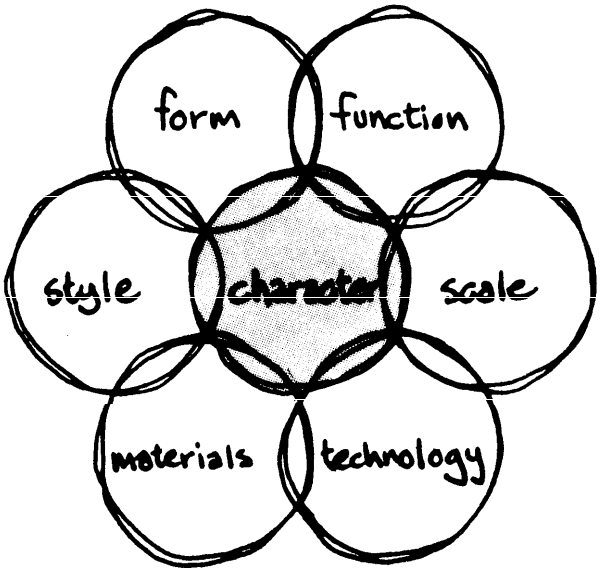
2-7 Architectural Character

a. In Arts and Crafts Centers, emphasis is placed on the creation of objects of beauty and function. Therefore, it stands to reason that the centers themselves should reflect similar concerns with good design and functional planning.

b. Military posts are dispersed worldwide and, in a broad sense, local commands should be sensitive to regional characteristics of architectural style, scale, form, materials and composition. This does not mean that the buildings on any one post should be copies of a particular architectural style. Architecture expresses the culture and technology of its own time, and military construction should be no exception. Architectural character should be an outgrowth of function and form and for an Arts and Crafts Center, it should be unpretentious and humane.

c. Arts and Crafts Centers should be inviting places whose exteriors express some of the excitement of the activities within. Tasteful bulletin boards, window displays, signage, entrances and landscaping should all attract the casual passerby. The building itself should not strike a jarring note within its neighborhood.

d. The appropriateness of building materials and scale will depend on the nature of the installation and the character of the ambient buildings. The building should exemplify desirable characteristics of local construction practices, with materials chosen on the basis of availability, economy, durability and capability to generate visual interest through color and texture.



Character Determinate

2-8 Interior Design

a. Interior design features must be developed in coordination with the architectural design. All features of the building relative to the interior design, whether they are furnished and installed as part of the construction contract or provided later by the using service, must be developed as an overall scheme. Graphic design and signage should be included as part of the overall design to identify activities and facilitate functional effectiveness. Requirements must be coordinated with the using service and the installation.

b. The costs of all items of equipment and furnishing which are permanently built-in or attached to the structure, as defined in AR 415-17, are normally considered part of the construction contract. Other items which are loose, portable or can be detached from the structure without tools, are generally provided by the using service under separate contract. Interior building surfaces, paint colors, floor coverings, window coverings as required, graphics and signage will be specified as part of the construction contract in coordination with the overall design. Furniture must be identified for procurement by others.

c. Drawings and schedules for items not included in the construction contract must be provided in a format that can be readily issued to and be understood by installation personnel who are responsible for procurement, and personnel who are responsible for component placement and utilization after delivery. Display sheets consisting of placement plans, catalog illustrations, material/color samples and perspective sketches of typical spaces; together with procurement lists, source data and cost estimates should be developed as appropriate to accomplish this objective. Clear coordination between these drawings and schedules, and the finish schedules under the construction contract must be evident.

d. Use of color in Army facilities is limited to a practical number selected from Federal Standard 595A, Colors. General guidance for color selection is provided in TM 5-807-7, *Colors for Buildings.* Color should be used to stimulate human physical and emotional reactions and to enhance the overall functionality of the Arts and Crafts Center. In critical seeing areas, glare, brilliant colors and great brightness differences, both in the lighting system and in the color of walls, floors, furnishings and equipment, should be avoided.

e. Interior finishes must be appropriate for the designed function of the building and spaces. Selection of materials should be based on low maintenance qualities considering the anticipated use, life-cycle cost impact, fire and other safety requirements. The color, texture and pattern of materials should complement the overall design scheme. Native (local) materials should be used to the greatest

extent practicable. Long-life materials such as stone, tiles, woods, plastics, and vinyls should be selected to provide attractive colors, textures and patterns which are relatively easy and inexpensive to refurbish and can be kept fresh and up-to-date in appearance.

f. Wallgraphics, while mainly decorative, may frequently incorporate useful information such as names, direction indicators, safety information, etc. When professionally done, they can be most effective in livening up dead spaces and producing interest such as in large rooms or circulation spaces.

g. Signage requirements must be defined in terms of an overall signage system. Detailed requirements of the using service must be coordinated at the local level. The system should assure maximum economy, ease of procurement and installation, and standardization of application throughout the Arts and Crafts Center. It should also inhibit vandalism but be flexible enough to enable the addition or deletion of information.

h. The *Catalog of Army Arts and Crafts Program Equipment* contains illustrations and specifications for equipment for the Army Arts and Crafts Program. *Essential Facilities and Equipment for Program Operations, Arts and Crafts Program,* lists essential equipment and budget prices. However, none of these sources cover all program items and costs, and specifications should be obtained from three major sources:

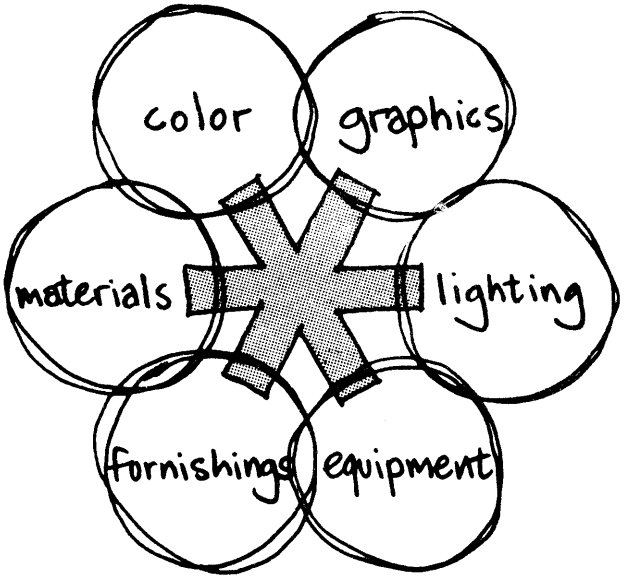
(1) Army schedules for government furnished standard items as indicated by the various commands.
(2) Schedules from GSA and Federal Prison Industries.
(3) Commercial supply firms.

i. Furniture is an integral part of the overall scheme, and must be closely coordinated with the selection of colors and finish materials for consistency in appearance and quality. Detailed requirements are covered in Chapter 3, Functional Space Requirements. Items which will be procured as part of the construction contract and those which will be procured by others must both be specified.

j. Sources for selection and procurement of furnishings are listed in the GSA *Federal Supply Schedules,* the *Federal Prison Industries Schedule of Products* and the *GSA Supply Catalog.* Procurement by the using service from these sources is mandatory when the items covered meet technical requirements. For items not listed in the mandatory sources above but which are part of the overall design scheme, appropriate guidance must be provided for procurement by the using service, from commercial firms.

k. Careful attention must be given to all interior furnishings to insure that the type of furniture chosen conforms to standards appropriate for the use they will receive. Parts that receive the most wear should be replaceable, and finishes should be able to sustain regular cleaning. Colors, textures, sizes, proportions, and shapes are important factors that should be considered. Furniture and equipment must withstand loading conditions without damage, and edges and surfaces should be smooth and rounded.

l. The proper spacing of equipment and adequate power supply is essential for the safe operation of the shops. The maximum number of tools is governed by the amount of area required for safe operation. Islands of space around most power tools is essential for safety. These requirements are identified in Chapter 3.



Interior Design Elements

2-9 Flexibility

a. As mentioned earlier, Arts and Crafts Centers will continually change as new trends and interests develop. Flexibility can prolong the usefulness of a facility to serve these ever changing demands. Physical flexibility is a function of and can be symbolized by five terms: Spatial variety, adaptability, changeability, multiple function and structural appropriateness.

(1) Spatial variety implies that different kinds of spaces are provided for different needs.

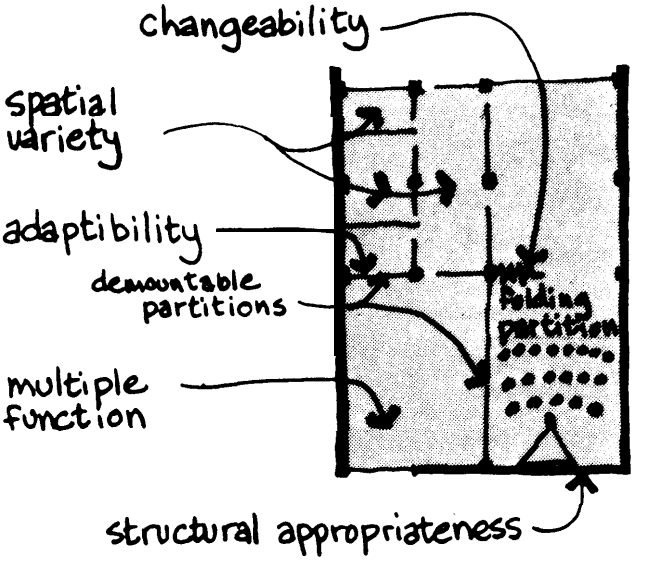
(2) Adaptability implies that changes can be made in response to new or different needs as they arise.

(3) Changeability implies that changes can be made easily in short periods of time.

(4) Multiple function implies that the space will accomodate a multitude of activities.

(5) Structural appropriateness implies that spatial changes can occur without changing the building structure.

b. Unless the facility is designed to allow for easy modification, changing requirements could make the centers functionally obsolete before their physical life is depleted.



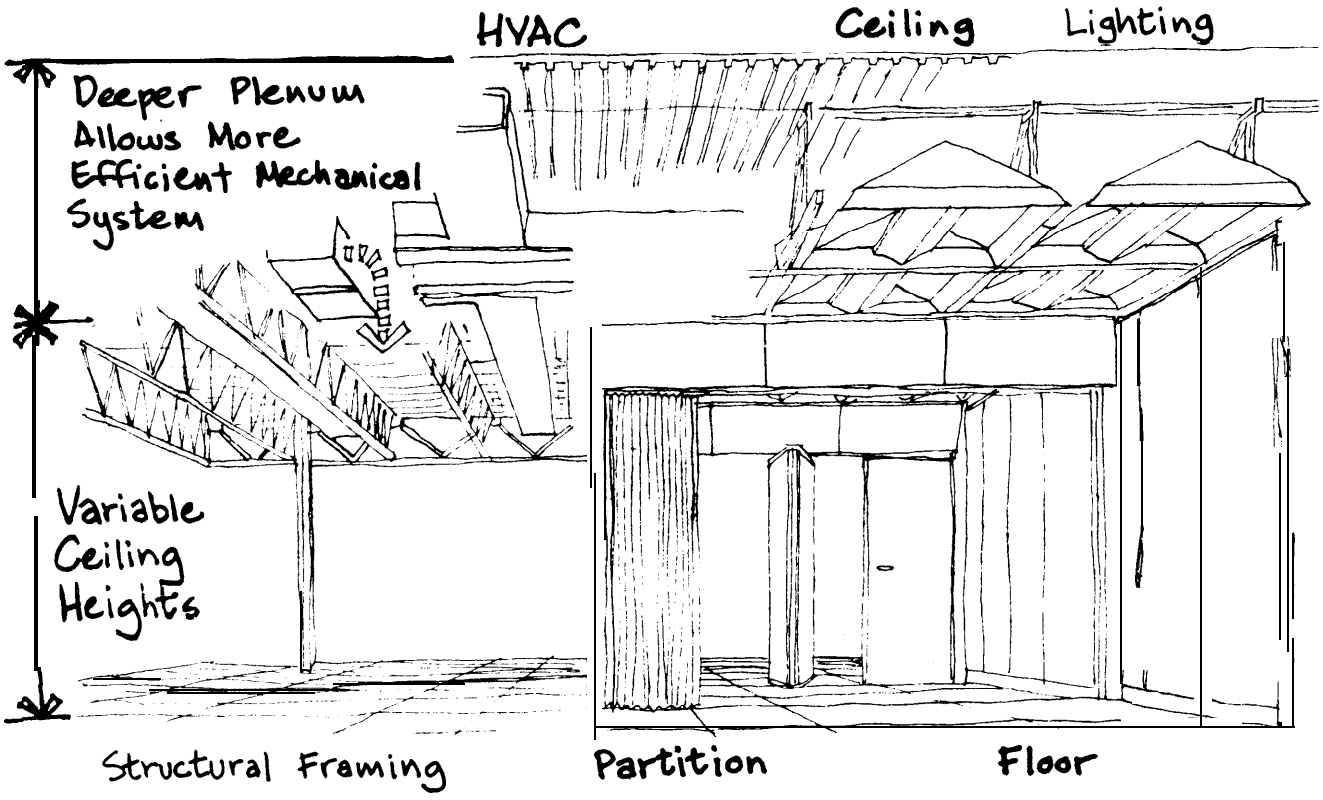
Physical Flexibility

2-10 Systems Building

a. Systems building is now much more than the experiment it was a few short years ago, and its methods and materials are readily available throughout the country. Simply, systems building is the long-overdue application of modern man's production techniques to the building process, and is taking on an expanded role in the construction industry.

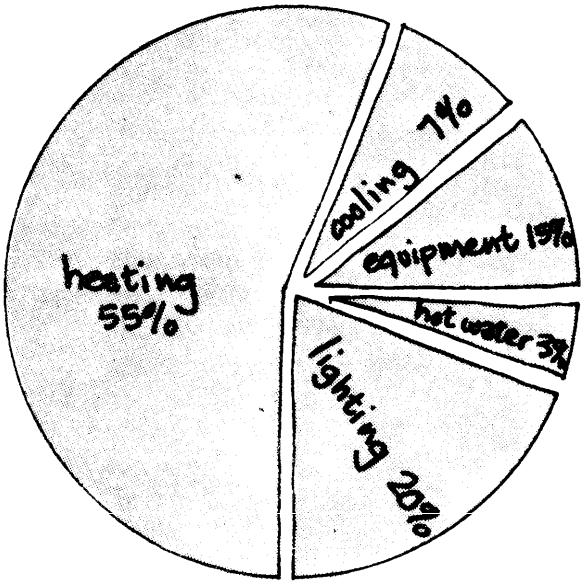
b. Systems built facilities are composed of sub-systems which typically include structural framing systems, lighting and ceiling systems, heating, ventilating and air-conditioning systems, and interior partitioning systems. The best examples of systems built facilities offer economy of both time and money committed to construction, a high degree of quality control, and maximum flexibility of space.

c. Building systems selected should be those which are most economical and suitable based on comparative cost studies for the buildings.

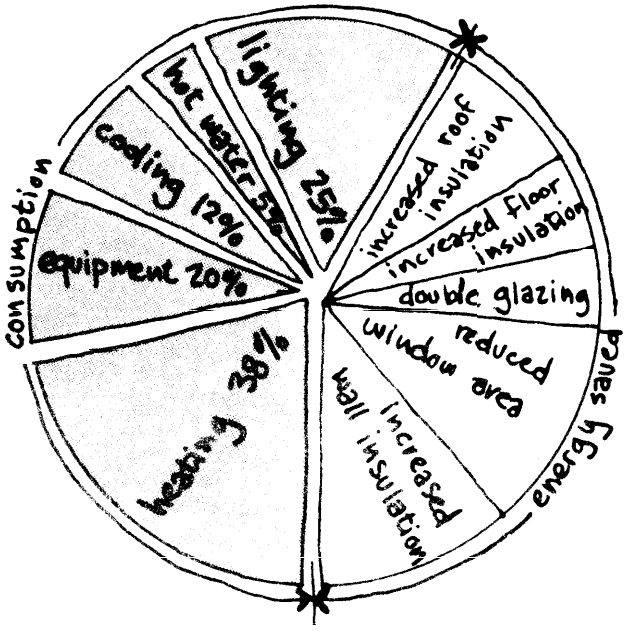


Sub-Systems

2-11 Energy Conservation



Typical Annual Energy Consumption



Possible Savings in Annual Energy Consumption

a. With decreasing energy sources, the design of Arts and Crafts Centers must consider methods of energy conservation. New construction offers a variety of methods to conserve energy. The skillful exploitation of local climate conditions, topography, trees, solar exposure and other natural features, combined with building orientation, compact building shapes, and wall shading, offer opportunities for energy conservation. The simple consideration that each side of a building may require different treatment depending on its exposure is often overlooked in designing an energy efficient building.

b. An obvious area to consider is the mechanical and electrical design since this is the heart of energy consumption. Since there is a certain amount of heat buildup from the operation of equipment within the Arts and Crafts Center, a heat recovery system could put excess energy to good use. Long-range (life-cycle) costing, which compares initial capital improvement costs to the life time operating and maintenance costs, is effective in determining the most efficient balance between the building and mechanical systems.

c. Certain energy saving techniques benefit the operation and maintenance of Arts and Crafts Centers. Stepping down excessively high requirements for heating, cooling, lighting, can make a considerable difference. Night time control settings and automatic regulation of mechanical equipment can also result in great savings. Lighting intensities should conform to the minimum levels recommended by the latest edition of *Illuminating Engineering Society Lighting Handbook*. Where practical, lighting should be designed for specific local tasks instead of providing uniform general loads.

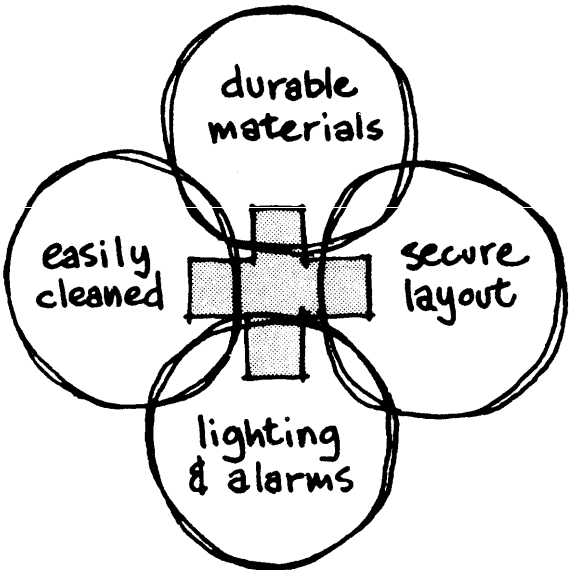
d. The upper chart on this page shows the proportion of typical annual energy consumption for an arts and crafts center. The second chart shows a possible 40% savings in total consumption due to various conservation techniques, resulting in a reapportionment of energy consumption. Conservation techniques when used at the time of construction provide a real savings during the life of the facility in both resources and operating funds.

2-12 Minimizing Maintenance and Vandalism

a. Since the Arts and Crafts Center will experience very heavy wear during its lifetime from people, materials and activities, steps should be taken to keep maintenance costs to a minimum. Care in the choice of materials should insure that the building and each of its components are durable enough to withstand hard usage and to be easily cleaned. Fume hoods, dust collectors and similar mechanical devices help offset maintenance problems and increase the lifetime of the building. Equipment specified should be that which minimizes maintenance.

b. When considering new facilities, it is very important to assure that adequate funds and personnel are available to properly maintain them. This potential problem is often overlooked.

c. Vandalism is an increasing social problem nearly everywhere, including military installations. It must be considered when designing Arts and Crafts Centers. Lay-out of the building, the elimination of hard to supervise areas, use of durable materials and security lighting are important in alleviating this problem.



Upkeep Factors

2-13 Found Space In Existing Buildings

a. There are facilities on many installations that no longer serve their designed purposes. Finding and adapting space in such buildings to other functions may be a solution to the space needs of an Arts and Crafts Center. However, a careful analysis of functional suitability and economics is required before such a decision can be reached.

b. In order to determine the validity of using found space the planner should, in the preliminary stage, prepare an inventory of existing buildings that are available for the intended use. Any existing facility considered for long term use as an Arts and Crafts Center should, as a first principle, fit within the land-use parameters of the installation master plan. An analysis of the suitability of a particular facility for its proposed adaptive use should follow a progressively more detailed evaluation. A primary test of suitability should include:

(1) Location and accessibility–An otherwise suitable building which is in the wrong location is not a viable solution unless other factors, such as the addition of bus service, can be introduced.

(2) Site Size–The site must be adequate for its proposed function which may also include building additions.

(3) Comparability of Functions–The Arts and Crafts Center must be compatible with adjacent facilities.

(4) Availability of Utilities–An advantage of found space may be the cost savings resulting from existing utilities. Conversely, lack of basic services may be grounds for rejecting such space.

c. Facilities that appear to meet the foregoing primary test can be surveyed to determine the feasibility of converting or remodeling. The survey of an existing structure should follow an analytical format to permit value judgements of its suitability.

d. There are a number of evaluation techniques in use today. The best generally accepted methods rely on a numerical scoring system to arrive at an index of economic and functional acceptability. All methods are necessarily subjective to a greater or lesser extent, and the judgment and experience of the surveyor is an important factor.

e. The chart on page 21 illustrates one analytic format which is suitable for the level of complexity of an Arts and Crafts Center. It establishes a numerical framework within which the intrinsic value of a potential “found space” building can be approximately determined.

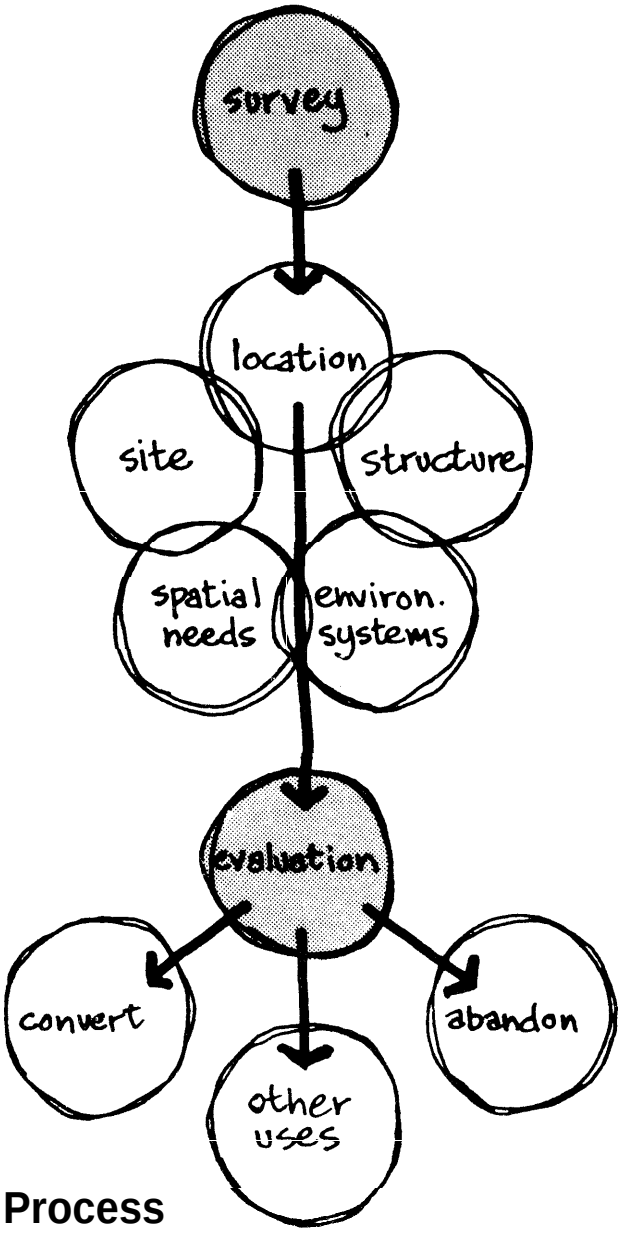
f. The 12 major site elements and 15 major building elements listed in column 1 are assigned a percentage of the cost for a complete building. The percentages listed

Survey and Evaluation of Existing Buildings

Survey and Evaluation of Existing Buildings

1. SITE AND BUILDING ELEMENTS	2. PERCENTAGE VALUE OF ITEM	3. PERCENTAGE ACCEPTABLE IN THIS BUILDING	4. ACTUAL VALUE FACTOR
LOCATION SURVEY			
1 AVAILABILITY	[30]	[80]	[24.0]
2 PUBLIC TRANSPORTATION	[5]	[50]	[2.5]
3 PRIVATE TRANSPORTATION	[7]	[80]	[5.6]
4 PEDESTRIAN ACCESS	[3]	[70]	[2.1]
5 SAFETY	[5]	[60]	[3.0]
6 COMPATIBILITY	[10]	[75]	[7.5]
SUBTOTAL	[60]		[44.7]
SITE SURVEY			
7 SANITARY SEWER	[10]	[100]	[10.0]
8 ELECTRIC SERVICE	[10]	[50]	[5.0]
9 WATER SERVICE	[10]	[30]	[3.0]
10 SIZE	[5]	[50]	[2.5]
11 ROADS, WALKS, PARKING	[3]	[30]	[0.9]
12 LANDSCAPING	[2]	[10]	[0.2]
SUBTOTAL	[40]		[21.6]
TOTAL	[100]	TOTAL V.F.%	[66.3]*
ARCHITECTURAL SURVEY			
1 SIZE	[5]	[80]	[4.0]
2 EXTERIOR WALLS	[8]	[70]	[5.6]
3 ROOF	[3]	[30]	[0.9]
4 FLOOR	[4]	[90]	[3.6]
5 CEILINGS	[3]	[60]	[1.8]
6 PARTITIONS	[7]	[10]	[0.7]
7 WALL FINISHES	[2]	[0]	[0]
8 FIXED EQUIPMENT	[4]	[0]	[0]
9 MISCELLANEOUS	[4]	[0]	[0]
SUBTOTAL	[40]		[16.6]
STRUCTURAL SURVEY			
10 EXCAVATION AND SUBSTRUCTURE (FOOTINGS)	[5]	[100]	[5.0]
11 SUPERSTRUCTURE (FRAME, COLUMNS)	[2]	[100]	[2.0]
12 HORIZONTAL FRAME (JOISTS, BEAMS, SLABS)	[18]	[90]	[16.2]
SUBTOTAL	[25]		[23.2]
ENVIRONMENTAL SYSTEMS SURVEY			
13 HEATING, VENTILATING, AND AIR-CONDITIONING	[20]	[50]	[10.0]
14 PLUMBING	[5]	[75]	[3.8]
15 ELECTRICAL	[10]	[65]	[6.5]
SUBTOTAL	[35]		[20.3]
TOTAL	[100]	TOTAL V.F.%	[60.1]*

* See paragraph 2-13.h



Process

are typical and taken from construction cost indices. They may very depending on local or special factors.

g. In most cases, a visual inspection by a knowledgeable surveyor, can result in a numerical value being assigned to the percentage acceptable for each element. Those elements that are entirely acceptable are assigned a value, or "feasibility factor" of 100. Those that require modifications are given lower numbers as are judged appropriate. These are entered in column 3.

h. Column 4 provides an "Actual Value Factor". It is determined by multiplying columns 2 and 3, and dividing by 100. The total of all actual value factors produces an overall value factor which offers a useful yardstick in approximating the relative worth of an existing facility compared to a new structure. One rule of thumb is that if the overall value factor is over 50% it would be reasonable to pursue in greater detail the economic feasibility of converting its space. Simplified, that means the existing facility in its present state is worth half that of a new physical facility. A sample evaluation is shown on the chart.

i. If the proposed facility has passed this test of acceptability, the next step is to establish preliminary cost estimates for bringing the building to a state of usefulness for its new function. This usually requires the preparation of conceptual design drawings and an analysis of the usefulness of the converted space.

j. Found space is frequently a solution to housing expanded Arts and Crafts Programs in satellite centers. For efficient space and maintenance management, a reasonably large cluster of activities should be incorporated together into one location. From the list of activities given in Chapter 3 a separation of activities into three subsections would be the maximum recommended: Woodworking Activities, Photography, and General Arts and Crafts.

k. The criteria given in Chapter 3 of this guide is based upon a 20,650 square foot Arts and Crafts Center which was selected only for illustrative purposes. Experience has shown that if a building is converted to another use, it will usually have to be larger than a building designed specifically for that use, because of inherent problems of flexibility and structural limitations. These factors must be considered when evaluating a structure for a particular use.

l. Following the preparation of a program, a conceptual design response to it, and a preliminary cost estimate, some valid judgments can be made on the advisability of converting space. Obviously, if the cost of the conversions are high in ratio to the Overall Value Factor the econom-

ics of conversion are highly suspect.

m. The initial cost of construction or of conversion should not be the only economic criteria for decision making. Life-cycle costing is a method of determining the economic feasibility of facilities taking into account the useful life expectancy of a converted facility against a new one. It recognizes that initial cost is only one, and by no means the largest, expense in a building's life. Operating and maintenance costs are also considered. By amortizing all costs over the life expectancy of a facility, a comparative economic evaluation, prorated on an annual basis, can be established. This then can form the foundation for economic decision.

n. Another way of evaluating criteria for found space is through a checklist. The chart on this page is a simplified tabulation of the facility requirements from Chapter 3 of this guide, and is intended to be used as a criteria checklist. A number or specific requirement is written in the top half of many of the squares. If the space being evaluated meets these criteria enter a checkmark or numerical rating in the lower half to indicate how well the requirement is met. Where the darker shading exists in the upper half of the square, there is a requirement without a specific quantity. Again a checkmark or numerical rating should be placed in the lower half. If the space being evaluated does not meet the requirements then a "X" or a zero should be placed in the lower half of the square. Where the lighter shading exists there is no requirement. This checklist is a simple means of evaluation and can be easily used to analyze found space with respect to functional requirements.

Criteria Checklist for Evaluation